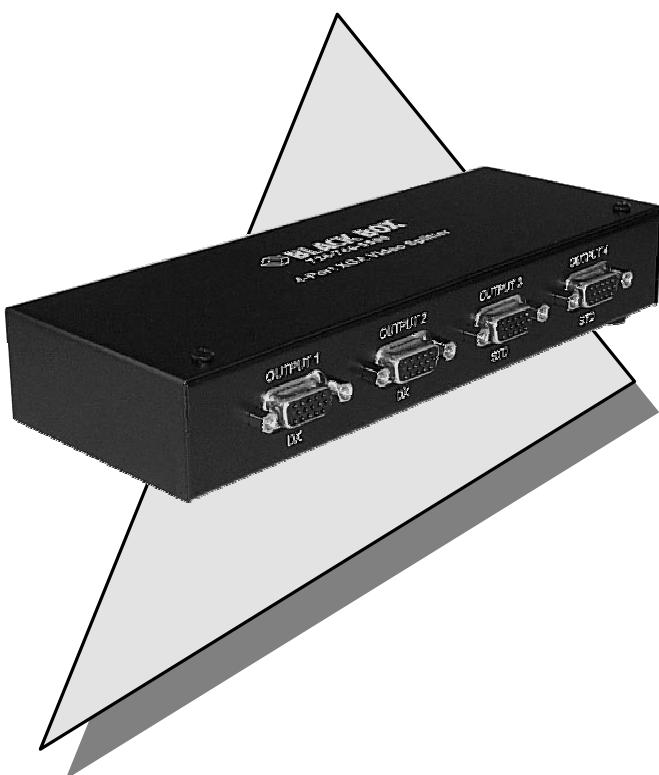


4-Port XGA Video Splitter

With Long Cable Drive Capability



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Order toll-free in the U.S. 24 hours, 7 A.M. Monday to midnight Friday: **877-877-BBOX**
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AND CANADIAN DEPARTMENT OF COMMUNICATIONS
RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada.

EUROPEAN UNION DECLARATION OF CONFORMITY

This product complies with the requirements of the European EMC directive 89/336/EEC



Normas Oficiales Mexicanas (NOM)

Electrical Safety Statement

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquear la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico debe ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objectos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Introduction

1.1 General

The Model AC090A is a 1 in x 4 out XGA Video Splitter / Distribution Amplifier with field-programmable cable length compensation on 2 outputs for driving long video cables.

The unit accepts a VGA input signal from a computer and provides 2 standard outputs and 2 boosted outputs. The standard outputs are labeled "STD" and are capable of driving cables up to approximately 150 feet. The boosted outputs are labeled "DX" and can be programmed using dip-switches to drive any length of cable up to 600 feet.

The Model AC090A fully terminates the input video signal and amplifies it using high bandwidth buffers to ensure a clear and crisp image at each output. The unit accommodates a maximum resolution of 1600 x 1200 pixels at refresh rates to 100 Hz.

It is recommended that when video extension cables are required, only high quality multi-coaxial VGA or RGBHV (such as Black Box EVNPS05-0050-MF) be used.

The Model AC090A is housed in a compact shielded enclosure and includes a small power adapter and a 6 ft video cable for connection to the PC's VGA output.

1.2 Features

- Low cost, high reliability
- Packaged in a portable EMI shielded enclosure
- Field-programmable compensation for driving long cables
- Resolutions up to 1600 x 1200
- HD15 connectors for input and outputs
- Perfect for presentations or remote monitoring

2. Installation

1. Connect the COMPUTER input connector on the AC090A to the computer's video (or any other compatible video source) using the supplied cable (see figures 2.1). The video connector on the PC is usually a HD15 female with three rows of contacts.

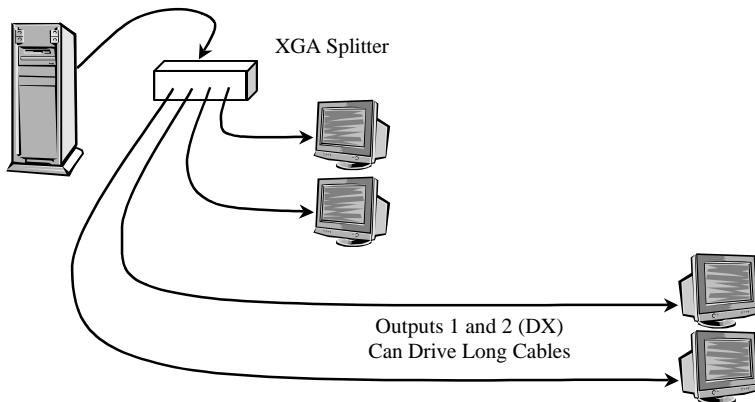


Figure 2.1



Figure 2.2

4-Port XGA Video Splitter

2. Connect the AC adapter to the PWR jack on the splitter and plug it in the AC source. Connect up to 4 monitors to the outputs of the splitter. If any of the monitors are to be located further than 150 feet, plug them in to the DX ports of the splitter (see figure 2.2).
3. The Model AC090A has a special compensation to drive long video cables that can be applied to outputs 1 & 2. Use the following table to set the dip-switch for these outputs (see figure 2.3).

<i>Dip Switch Setting</i>	<i>Range of Cable on Outs 1 & 2</i>
▲▲	0 to 100 feet
▼▲	100 to 250 feet
▲▼	250 to 400 feet
▼▼	400 to 600 feet



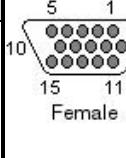
Figure 2.3

NOTE

The compensation setting affects both DX outputs equally

- If you are using cables longer than 25 feet on any of the outputs of the splitter, make sure that the cable is connected to a monitor for proper termination, or else disconnect the cable from the splitter.

High-Density 15-Pin VGA Connector	
PIN	Function
1	Red
2	Green
3	Blue
4	Not Used
5	Gnd
6	Red Return (Gnd)
7	Green Return (Gnd)
8	Blue Return (Gnd)
9	Key (Not Used)
10	Gnd
11	Gnd
12	SDA (plug-n-play)
13	Horizontal Sync
14	Vertical Sync
15	SCL (plug-n-play)



The diagram shows a triangular pin configuration for a 15-pin connector. The pins are numbered as follows: Pin 1 is at the top right, Pin 5 is at the top left, Pin 10 is at the bottom left, Pin 15 is at the bottom center, and Pin 11 is at the bottom right. A horizontal line through the middle of the triangle is labeled "Female".

On the Model AC090A splitter the SDA and SCL pins are connected from the input to output #4

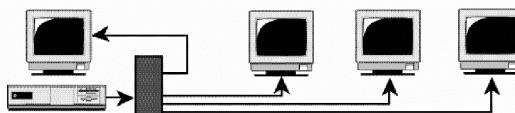
3. Operation

The video signal is fully terminated and buffered in the AC090A. The splitter should operate optimally with no special attention or procedure.

Assuming that there are no major grounding or large EMI noise problems present in the installation location, the video quality at the remote stations depend on the quality and the length of the video cables used. In addition, the resolution and refresh rate settings of the computer affect image clarity.

In general you can expect excellent image reproduction at any resolution setting. When long video cables are used, particularly at high resolution and refresh rates, video losses may be incurred in the cable. Refer to section 2 for details.

The Model AC090A can split the signal of virtually any video with HD 15 style of connector. It can also be used on the analog video output signal of other PC's or computers such as: Apple, Sun, SGI, and RGB type outputs. However, some may require special adapter cables.



4. Troubleshooting

4.1 Problem Solving FAQ

1) Fuzzy, blurry, or ghosting image at remote location

If you have a stable but somewhat blurry image (object or character edges are not sharp), make sure that you have set the unit's compensation switches correctly. If you still have a fuzzy image, try reducing the refresh rate and/or resolution of the PC. You should also be sure to use multi-coaxial (double shielded) 75 ohm video extension cables for best results. A ghosting image is usually an indication of impedance mismatch of the cable.

If too much compensation is applied at the splitter, a bright and ghosting image may also result. In this case try reducing the amount of compensation.

2) Image exhibits steady or rolling horizontal color "hum" bars

This is usually an indication of improper grounding either at the sending end, the receiving end, or both. Verify that the AC line is properly wired and that a protective ground (green) wire is established with NO potential difference between both the sender and receiver locations.

3) The PC does not recognize a Plug-and-Play monitor

If the PC's Operating System is setup to detect a plug-and-play monitor (usually in Display Properties: Advanced Settings), it may have trouble finding a monitor if no local monitor is hooked up to the splitter's OUTPUT #4. Only the ID information of the monitor at OUTPUT #4 is passed to the PC. If the PC does not produce an image due to this,

either connect a monitor to this output port, or disable the plug-and-play monitor detection in the PC's operating system.

4) Faint shadows or ghosts at the monitors

If you are using cables longer than 25 feet on any of the outputs of the splitter, make sure that the cable is connected to a monitor for proper termination, or else disconnect the cable from the splitter.

5) Substituting power supplies

The splitter relies on the AC power adapter that is supplied with it. The adapter generates a floating 12 v DC power for the unit. If you intend to use a different external DC power that is referenced to ground, the splitters will not function properly.

4.2 Calling Black Box

If you determine that your splitter is malfunctioning, do not attempt to repair the unit. Contact Black Box Tech. Support at 724-746-5500.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- The nature and duration of the problem
- The components involved in the problem—that is, what type of cable, makes and models of computers and monitors, etc.
- The results of any testing you've already done

4.3 Shipping and Packaging

If you need to transport or ship your splitter:

- Package it carefully. We recommend that you use the original container.
- Before you ship the unit back to Black Box for repair or return, contact us to get a Return Authorization (RA) number.

5. Specifications

Compliance	CE; FCC Part 15 Subpart B Class A, IC Class
Standards	VGA, SVGA, or XGA video
Interfaces	VGA video
Supported Video Types	VGA through XGA, RGBS, or RGsB (sync-on-green)
Resolution & Refresh Rate	Up to 1600 x 1200 non-interlaced at up to 100 Hz
Bandwidth	Video: DC to 250 MHz
Video Level	0.7 volts peak-to-peak
Maximum Distance	Up to 600 ft. (180 meters) – See section 2 for details
Connectors	HD15 female for all video input and output
Maximum Altitude	10,000 ft. (3048 m)
Temperature Tolerance	Operating: 32 to 122°F (0 to 50°C); Storage: -40 to +185°F (-40 to +85°C)
Humidity	Up to 95% non-condensing
Enclosure	Steel
MTBF	500,000 hours (calculated estimate)

Power	From utility-power (mains) outlet, through included external power adapters. Output Voltage: 12v DC Center-Positive, floating (do not substitute any other external power supply). Power supply current requirements: 300 ma, minimum
Size	7.25" W x 2.75" D x 1.25" H
Weight	2.0 lb

NOTES



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